WHAT IS CLAIMED IS:

1. A thick film thermistor comprising:

(a) a pair of shaped electrical conductors deposited on a first support substrate;

(b) a temperature sensitive ink layer deposited over the pair of electrical conductors so that the ink layer is coextensive with the pair of electrical conductors; and

(c) a second support substrate bonded to the first support substrate.

2. The thick film thermistor according to claim 1 wherein the temperature sensitive ink layer comprises a high temperature, carbon-free temperature sensing ink layer.

3. The thick film thermistor according to claim 1 wherein the temperature sensing ink layer comprises:

(a) a high temperature ink binder;

(b) intrinsically semiconductive particles; and

(c) conductive particles comprising a conductive metal oxide compound based on an oxygen value of two.

4. The thick film thermistor according to claim 3 wherein the temperature sensitive ink layer comprises conductive particles having a mixture of conductive tin oxide particles and Fe_3O_4 iron oxide particles, and further comprises dielectric particles.

5. The thick film thermistor according to claim 1 wherein the pair of shaped electrical conductors comprise deposited shaped, silver based conductive ink patterns.

6. The thick film thermistor according to claim 1 wherein each conductor of the pair of shaped electrical conductors is shaped in an interdigitated manner with the other electrical conductor.

7. The thick film thermistor according to claim 1 wherein a resistance value of the thermistor is determined by a surface area of the pair of shaped electrical conductors and a resisitivity of the temperature sensitive ink layer.

8. The thick film thermistor according to claim 1 wherein the first support substrate and the second support substrate comprises a flexible film substrate.

9. The thick film thermistor according to claim 1 wherein the pair of shaped electrical conductors are connected to resistance measuring circuitry for temperature compensation.

10. A method of manufacturing a thick film thermistor, comprising the steps of:

(a) depositing a pair of shaped electrical conductors on a first support substrate;

(b) depositing a temperature sensitive ink layer over the pair of electrical conductors so that the ink layer is coextensive with the pair of electrical conductors; and

(c) bonding a second support substrate to the first support substrate.

11. The method of manufacturing a thick film thermistor according to claim 10 wherein the temperature sensitive ink layer comprises a high temperature, carbon-free temperature sensing ink layer.

12. The method of manufacturing a thick film thermistor according to claim 10 wherein the temperature sensitive ink layer comprises:

(a) a high temperature ink binder;

(b) intrinsically semi-conductive particles; and

(c) conductive particles comprising a conductive metal oxide compound based on an oxygen value of two.

13. The method of manufacturing a thick film thermistor according to claim 12 wherein the temperature sensitive ink layer comprises conductive particles having a mixture of conductive tin oxide particles and Fe_3O_4 iron oxide particles, and further comprises dielectric particles.

14. The method of manufacturing a thick film thermistor according to claim 10 wherein the step of depositing the pair of shaped electrical conductors comprises depositing shaped, silver based conductive ink patterns.

15. The method of manufacturing a thick film thermistor according to claim 10 wherein the step of depositing a pair of shaped electrical conductors comprises the step of depositing each conductor of the pair of shaped electrical conductors in an interdigitated manner with the other electrical conductor.

16. The method of manufacturing a thick film thermistor according to claim 10 wherein a resistance value of the thermistor is determined by adjusting a surface are of the pair of shaped electrical conductors and a resistivity of the temperature sensitive ink layer.

17. The method of manufacturing a thick film thermistor according to claim 10 wherein the first support substrate and the second support substrate comprise flexible film substrates.

18. A thick film thermistor, comprising:

(a) a pair of shaped thermistor electrical conductors deposited on a first support substrate;

(b) a first shaped force sensor electrical conductor deposited on the first support substrate;

(c) a second shaped force sensor electrical conductor deposited on a second support substrate, the second shaped force sensor electrical conductor forming a mirror image of the first shaped force sensor electrical conductor;

(d) a first force and temperature sensitive ink layer deposited over the pair of shaped thermistor electrical conductors so that the ink layer is coextensive with the pair of thermistor electrical conductors;

(e) a second force and temperature sensitive ink layer deposited over the first shaped force sensor electrical conductor so that the ink layer is coextensive with the first shaped force sensor electrical conductor;

(f) a third force and temperature sensitive ink layer deposited over the second shaped force sensor electrical conductor so that the ink layer is coextensive with the second shaped force sensor electrical conductor; and

(g) the second support substrate being bonded to the first support substrate so that the second sensitive ink layer is coextensive with the third sensitive ink layer, and the first shaped force sensor electrical conductor is aligned in a mirror image manner with the second shaped force sensor electrical conductor.

19. The thick film thermistor according to claim 18 wherein the force and temperature sensitive ink layers comprise:

(a) a high temperature ink binder;

(b) intrinsically semiconducitve particles; and

(c) conductive particles comprising a conductive metal oxide compound base on an oxygen value of two.

20. The thick film thermistor according to claim 18 wherein the electrical conductors comprise deposited shaped silver based conductive ink patterns.

21. The thick film thermistor according to claim 18 wherein each conductor of the pair of shaped thermistor electrical conductors is shaped in an interdigitated manner with the other electrical conductor.

22. The thick film thermistor according to claim 18 wherein the first support substrate and the second support substrate comprise a flexible film substrate.

23. The thick film thermistor according to claim 18 wherein: the pair of shaped thermistor electrical conductors are connected to resistance measuring circuitry for temperature compensation; and the first shaped force sensor electrical conductor and the second shaped force sensor electrical conductor are connected to resistance measuring circuitry for force determination.

24. A method of manufacturing a thick film thermistor, comprising the steps of:

(a) depositing a pair of shaped thermistor electrical conductors on a first support substrate;

(b) depositing a first shaped force sensor electrical conductor on the first support substrate;

(c) depositing a second shaped force sensor electrical conductor on a second support substrate, the second shaped force sensor electrical conductor forming a mirror image of the first shaped force sensor electrical conductor;

(d) depositing a first force and temperature sensitive ink layer over the pair of shaped thermistor electrical conductors so that the ink layer is coextensive with the pair of thermistor electrical conductors;

(e) depositing a second force and temperature sensitive ink layer over the first shaped force sensor electrical conductor so that the ink layer is coextensive with the first shaped force sensor electrical conductor;

(f) depositing a third force and temperature sensitive ink layer over the second shaped force sensor electrical conductor so that the ink layer is coextensive with the second shaped force sensor electrical conductor; and

(g) bonding the second support substrate to the first support substrate so that the second ink layer is coextensive with the third sensitive ink layer, and the first shaped force sensor electrical conductor is aligned in a mirror image manner with the second shaped force sensor electrical conductor.

25. The method of manufacturing a thick film thermistor according to claim 24 wherein the force and temperature sensitive ink layers comprise:

(a) a high temperature ink binder;

(b) intrinsically semiconductive particles; and

(c) conductive particles comprising a conductive metal oxide compound based on an oxygen value of two.

26. The method of manufacturing a thick film thermistor according to claim 24 wherein the step of depositing the shaped electrical conductors comprises depositing shaped, silver based conductive ink patterns.

27. The method of manufacturing a thick film thermistor according to claim 24 wherein the step of depositing a pair of shaped thermistor electrical conductors comprises the step of depositing each conductor of the pair of shaped thermistor electrical conductors in an interdigitated manner with the other electrical conductor.

28. The method of manufacturing a thick film thermistor according to claim 24 wherein the first support substrate and the second support substrate comprise flexible film substrates.